



**STATE OF MONTANA
MONTANA DEPARTMENT OF TRANSPORTATION
JOB PROFILE**



Update



Formal Review

Date Submitted _____

SECTION I - Identification

Working Title: Transportation Planner
(Cartographer Series)

Department: Transportation

Job Code Number: 193536

Division & Bureau:
Rail, Transit & Planning/Data & Statistics

Job Code Title:
Planner IV and V – GIS Analyst/Cartographer

Section & Unit:
Road Inventory and Mapping

Pay Band: Band 6, Levels 1 and 2

Work Address: 2701 Prospect Ave
PO Box 201001
Helena, MT 59620-1001

Position Number: 26002 and 26067

Phone:



FLSA Exempt



FLSA Non-Exempt



Non-Union



MPEA



Blue Collar

Profile Completed By:

Ed Ereth and Brian Andersen

Work Phone: 406-444-6103

Work Unit Mission Statement or Functional Description: The MDT's mission is to serve the public by providing a transportation system and services that emphasize quality, safety, cost effectiveness, economic vitality and sensitivity to the environment.

The principal goals of the Rail, Transit and Planning Division are to develop and implement a long-range multimodal construction program that addresses Montana's most important statewide transportation needs and to support the development and safety of Montana's multimodal transportation system. These dual goals are addressed through the complex interaction and interrelationship of the following five bureaus, Data and Statistics; Grants; Multimodal Planning; Policy, Programs and Performance Analysis; and Environmental Services.

The Data and Statistics Bureau's mission is to gather, format, and analyze transportation data in an efficient, accurate and meaningful way. A centerpiece of the Bureau's function is to provide service to its clients in the form of more than 20 data and statistics products. These products embody a variety of disciplines and range from detailed traffic records to data management and monitoring systems, road inventories, and Geographic Information Systems (GIS) and mapping. The Bureau develops, maintains, and administers complex, comprehensive data collection and analysis programs and maintains comprehensive maps and related data bases used for transportation planning, highway design and maintenance, safety, research, federal certifications, modal research allocations and distribution of federal highway funds in accordance with state financial

distribution statutes. The Bureau maintains and administers several elements of the State of Montana's Transportation Information System; the Federal Highway Performance Monitoring System; and the Traffic Monitoring System. The Bureau is also responsible for calculating fuel tax allocations to local governments, calculating Secondary roads allocations, and mapping programs. The Bureau evaluates special studies and plans, provides executive management with empirical data for complex, potentially controversial decisions, and is responsible for the statistical accuracy of state certified reports to the federal government.

Within the Data and Statistics Bureau, the Road Inventory and Mapping Section (RIM), through a comprehensive Road Inventory and Mapping Program, collects, analyzes, displays and summarizes roadway locations, characteristics and statistics on Montana's public roadway systems. Roadway characteristics are developed into useable information that is essential for the administration, development, construction, maintenance, and operation of MDT's Highway Program as well as the management of Montana's portion of the federally mandated Highway Performance Monitoring System (HPMS). Specific products of the section include: Road Log element of the Transportation Information System (TIS); MDT's official Linear Referencing System (LRS), statistical reports and analyses; statewide distribution formula for the secondary roads funding program; distribution formulas for the fuel tax allocation program to cities and counties; historical data and records related to the federal functional classification system and route designations; recommendations for Montana's route signing program; official records documenting the realignment, deletion or addition of routes onto Montana's highway system; biennial reproduction of Montana's official highway map; annual certification of public road mileage in cooperation with Montana's cities and counties; public road inventory program; accurate state, city, and county maps in a Geographic Information System (GIS) environment.

Describe the Job's Overall Purpose:

This position serves as a professional transportation planner and GIS application expert within the Road Inventory and Mapping Section and is responsible for planning and managing statewide GIS data management and mapping projects and services. The position develops and establishes geospatial data management and mapping methods, procedures, and standards; develops project plans, priorities, and procedures; provides oversight and technical assistance to transportation planners, local government officials, consultants, MDT staff, and other; conducts quality assurance reviews; develops, tests, and implements new information system functions and operations; and provides a variety of related project management services. The position is also responsible for conducting specific GIS Road Inventory projects, producing and maintaining a variety of specialized interactive and printed maps, while also performing a variety of other duties as assigned. The position reports to the Section Supervisor and does not directly supervise others.

SECTION II - Major Duties or Responsibilities

% of Time

Planner IV – Band 6, Level 1

A. Mapping, GIS Analysis and Data Management

60%

1. Creates specialized maps for MDT, other state agencies, local governments, federal agencies and the general public. These maps are created with GIS software programs and provide specific relevant information. This involves assessing the specific map/information needs of requesting agency or individual; identifying and locating needed information, conducting research as necessary; and creating customized maps using compiled information, data and appropriate GIS applications.
2. Develops and recommends new methods and procedures for improving spatial database management. Evaluates needs of local officials; Division objectives related to GIS; information system capabilities and

limitations; transportation planning principles and standards; State and federal regulations; and other factors to develop and revise methods and procedures to improve integration between management systems.

3. The incumbent creates, develops or assists in publishing customized map books for federal, state, and public distribution, and designs how each book will be formatted and created to increase the accuracy and functionality of the books, and to facilitate future revisions and modifications. This includes creating, modifying, and editing plotting processes to be compatible with the printers, plotters, and software of the Road Inventory and Mapping Section.
4. Participates in special GIS/mapping projects. This involves analyzing data by statistical, financial, classification, and other empirical and scientific techniques to develop recommendations, and assists in the preparation of planning reports and presentations by compiling data and analyses into written narratives, graphs, charts, maps, and tables.
5. Develops and recommends data management and analysis parameters, other guidelines for geospatial data management and mapping activities. Coordinates with other planners to develop and recommend operational procedures.
6. Conducts the collection of field data to ensure procedures are appropriate. While in the field, the incumbent uses independent judgment regarding the most effective way to collect the required information. These tasks also require an in-depth understanding of broadly stated MCA laws to determine whether the route qualifies as being open to public travel.
7. Analyzes and manipulates raw road inventory data collected in the field by other staff to create useable data formats for a variety of MDT functions. Provides technical assistance and training to staff as needed to ensure data is used correctly, and to ensure that all user needs are met.

B. Project Management

30%

1. Provides ongoing oversight and technical assistance to transportation planners (i.e., within and outside the Section), local government officials, consultants, and other staff to resolve complex problems associated with geospatial data collection and mapping. This includes problems and issues affecting project delivery. Provides guidance and expertise on integrating and applying new system models, methods, and procedures.
2. Coordinates and oversees Departmental responses to complex, high-profile, and emergency geospatial data requests from the Governor's Office, federal, state and local agencies to provide accurate GIS data, support and mapping.
3. Assesses GIS training needs of agency staff and managers and develops and delivers customized training sessions. This involves developing appropriate training course content, materials, and curricula; coordinating and delivering formal training sessions; and evaluating training effectiveness.
4. Participates in ongoing research of various resources (e.g., technical journals, internet, etc.) and technical training to maintain current knowledge of continuously evolving GIS software, systems, and applications. Identifies new processes and system applications that may benefit planning processes and makes recommendations regarding system modifications and additional GIS uses.

5. Analyzes and evaluates information provided by federal, state and local governments and others to verify road classifications, locations, conditions, uses, and other characteristics affecting map designs and applications.
6. Coordinates with other MDT staff, local governments, landowners, and others to enhance accuracy, efficiency, and cost-effectiveness of GIS/GPS projects. Develops, recommends, and implements changes to data collection, map design, and geospatial data manipulation processes.

C. Other Duties

10%

1. This position performs a variety of other duties as assigned by supervisors in support of MDT mission and Division objectives. This includes coordinating special projects, representing the agency at various meetings and conferences, attending ongoing education and training, and performing a variety of other duties.

Planner V – Band 6, Level 2 - The responsibilities are the same as above in addition to:

A. Program and Project Management

60%

1. Develops project plans and recommends priorities for statewide GIS Road Inventory management and mapping projects including the creation, publishing and maintenance of county, city and urban map books. This involves assessing Section priorities, technical capabilities, resource allocations, cost effectiveness and other factors to ensure projects are completed on schedule and according to Section needs and specifications.
2. Implements and monitors quality assurance/quality control procedures to certify state fuel tax allocation and public road mileage data from the counties. This involves analyzing and interpreting applicable MCA requirements governing state fuel tax allocations, open vs. closed road, funding eligibility, etc.; and analyzing all available information, and contacting local residents, public works staff, county commissioners, and consulting various other sources to verify mileage figures, identify ongoing changes to Montana's public road network, and determine the overall accuracy and compliance of data in accordance with MCA.
3. Organizes, develops, and maintains a Policy and Procedures Manual used for the Road Inventory Data Collection functions in the Section. This requires knowledge and understanding of MCA laws, MDT standards and best practices affecting road inventory activities. Determination of whether a road is considered open to public travel is highly subject to interpretation, involving analysis and professional judgment by the incumbent.
4. Creates and maintains technical documents for use by MDT staff to provide guidance and direction on data collection and analysis parameters, other guidelines and standards for geospatial data management and mapping activities.
5. Oversees and coordinates multiple data management and mapping projects, while anticipating, and resolve problems affecting projects. This includes managing MDT's official GIS databases. Identifies errors and discrepancies related to process and procedural requirements and other factors. Determines and implements corrective actions as necessary. Responsible for creating and maintaining MDT's Geospatial Web Services that provides access to MDT's data for external and internal use.

B. Mapping, GIS Analysis and Data Management

30%

1. Develops and recommends software functions, operations, and other parameters necessary to collect, manipulate, analyze, and apply relevant geospatial data. Develops original scripts, queries, and models to manage and manipulate geospatial data according to specific project needs and requirements. Coordinates with State (e.g., MDT, FWP, etc.) and federal (e.g., USFS, USGS, etc.) cooperators to determine needs, develop technical specifications, and ensure consistency. Coordinates with MDT's Information Services Division on internal software and application development, testing, and implementation issues.
2. Provides input to agency managers and others regarding potential new uses for GIS software within MDT. This involves conducting in-depth assessment and analysis of current system uses; identifying and analyzing current and upcoming business processes and needs; identifying and assessing GIS problems and inconsistencies; and developing and recommending modifications and new GIS uses to maximize GIS operations, facilitate and/or streamline various business processes (i.e. creating and modifying the existing urban and county maps), resolve existing and potential system problems, and anticipate future GIS uses and needs.
3. Creates and maintains standardized metadata for MDT's spatial databases that provides information about the identification, the extent, the quality, the spatial and temporal schema, spatial reference, and distribution of the data.
4. Represents the Section and Bureau on technical research committees, advisory panels, workgroups, and other meetings to provide specialized GIS expertise, recommend solutions to data management and mapping problems, develop standards and procedures, conduct collaborative research, and exchange information. Acts as GIS Contact tasked with coordinating multi-agency projects through facilitation, communication and assessing solutions while upholding MDT's best interests and goals. Frequently leads and coordinates meetings and or presentations to internal and external parties.
5. Participates in MDT working groups to determine the future direction of GIS/GPS mapping and data collection for MDT and statewide use. Consults with MDT staff in the implementation of new, advanced GIS software and other geospatial-related computer functions for use in Section planning and mapping activities. This involves coordinating with other MDT staff to recommend effective implementation strategies by assessing current mapping and data collection processes and GIS capabilities; assisting in system and software implementation and providing training and technical assistance as needed to ensure that GIS applications are used correctly.

C. Other Duties

10%

1. Independently performs a variety of other complex duties as assigned by supervisors in support of the MDT mission and Division objectives. This includes coordinating special projects, representing the agency at various meetings and conferences, attending ongoing education and training, and autonomously performs a variety of other duties.

The following duties and/or specific tasks listed under section II above are considered "essential functions" because they require specialized expertise and skill and are the primary reasons the job exists (they must be performed by this position with or without accommodations):

- A. Program and Project Management**
- B. Data Analysis and Processing**

The following mental and physical demands are associated with these essential functions:

PHYSICAL

- Remaining seated for extended periods of time, with occasional walking, standing and bending.
- Operating a personal computer.
- Lifting (less than 30 lbs.)
- Operating a motor vehicle.
- Requires occasional extended periods of travel, working in all types of weather conditions, and working on and alongside roadways which experience high volume and high-speed traffic.
- Requires operating computers and digital measuring equipment; data collection and ensuring safety of co-workers and traveling public while working in the field.

MENTAL

- Requires work on multiple tasks simultaneously and effectively; remaining aware of workload and make appropriate adjustments to meet deadlines and complete tasks
- Demands for accuracy in all aspects of work performed.
- Compiling and analyzing information.
- Coordinating, negotiating, and instructing.
- Dealing with internal and external customers on a regular basis.
- Effectively communicate complex data relationships both verbally and in writing.

Does this position supervise others? ☐ Yes ☒ No

- Position provides oversight or technical assistance to some staff.
- Number directly supervised: 0
- Position Number(s) of those supervised: N/A

Attach an Organizational Chart.

Attached

SECTION III - Minimum Qualifications - List minimum requirements for the first day of work.

Critical knowledge and skills required for this position:

KNOWLEDGE:

Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.

English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.

Administration and Management — Knowledge of resource allocation, leadership technique, production methods, and coordination of people and resources.

Mathematics — Extensive knowledge of mathematical computation and statistical evaluation and a general knowledge of algebra and geometry and their applications.

Transportation Planning — General knowledge of the concepts, principles, objectives, and methods of planning, traffic model applications, data gathering techniques, and analytical research techniques and practices; computer operations and applications including word processing, file system management (e-files and hardcopy), relational databases and spreadsheets.

Data Management — Knowledge of GIS, Oracle, and Excel database development and data management.

Clerical — Knowledge of administrative and clerical procedures and systems such as word processing, managing files and records, designing forms, and other office procedures and terminology.

SKILLS:

Problem Solving - Identifying problems and reviewing related information to develop and evaluate options and implement solutions.

Planning — Advanced skills in project planning and management; specialized GIS/GPS and data management applications, and organizing and coordinating field inventory activities.

Writing — Communicating effectively in writing as appropriate for the needs of the audience.

Speaking — Talking to others to convey information effectively.

Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Reading Comprehension — Understanding written sentences and paragraphs in work related documents.

Equipment Operation — Operating computers and digital measuring equipment; data collection and graphic presentations.

Behaviors required to perform these duties:

See MDT Core Competencies

Education:

Check the one box indicating minimum education requirements for this position for a new employee the first day of work:

- | | |
|---|--|
| <input type="checkbox"/> No education required | <input type="checkbox"/> Related AAS/2-years college/vocational training |
| <input type="checkbox"/> High school diploma or equivalent | <input checked="" type="checkbox"/> Related Bachelor's Degree |
| <input type="checkbox"/> 1-year related college/voc. training | <input type="checkbox"/> Related Master's degree |

Please specify the acceptable fields of study:

Acceptable: Planning or a related field

Related: Geology, Geography, Computer Science, Computer Information Systems, Business, Economics, Education, Public Administration, Mathematics, Finance, Accounting, Statistics, Social or Physical Science, Engineering, Land Use Planning, Resource Management
Other equivalent combinations of education and experience may be considered.

Geography, Statistics and Computer Information Systems are preferred.

Experience:

Check the one box indicating minimum work-related experience requirements for this position for a new employee the first day of work:

- | | |
|---|---|
| <input type="checkbox"/> No prior experience required | <input checked="" type="checkbox"/> 3 years |
| <input type="checkbox"/> 1 year | <input type="checkbox"/> 4 years |
| <input type="checkbox"/> 2 years | <input type="checkbox"/> 5 or more years |

Other specific experience:

Six months experience in program or project oversight preferred.

Alternative Qualifications:

This agency will accept alternative methods of obtaining necessary qualifications.

- ☒ Yes ☐ No

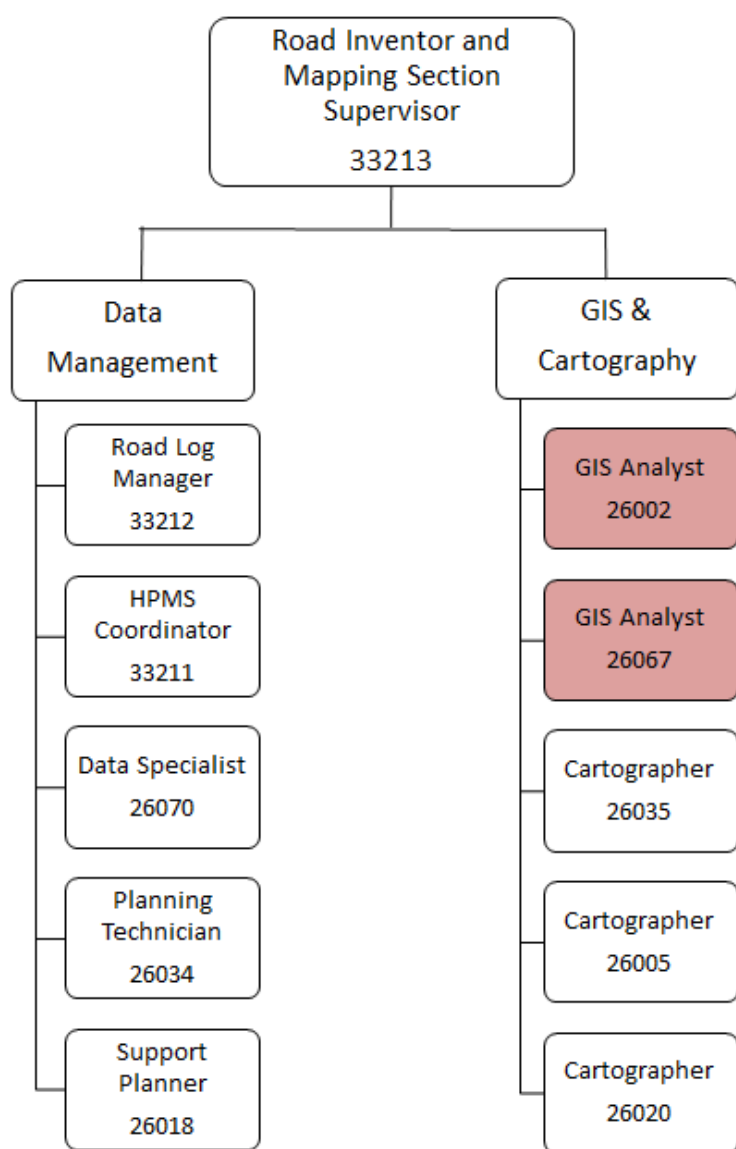
Alternative qualifications include: An AS in relevant fields and four years of progressively responsible experience in planning, programming analysis, data collection and analysis, research, or another appropriate field (statistics, engineering) OR an equivalent combination of education and experience.

SECTION IV – Other Important Job Information

- | | |
|--|--|
| <input type="checkbox"/> Fingerprint check | <input checked="" type="checkbox"/> Valid driver's license |
| <input type="checkbox"/> Background check | <input type="checkbox"/> Other; Describe |

Other information including working conditions such as shifts, lifting requirements, travel or hours. N/A

Driver's Records Check: Compliance with Mont. Admin. R. 2.6.201, "State Vehicle Use," and MDT Policy #3-0134, "Addendum to Risk Management and Tort Defense Division State Vehicle Use Policy" are a condition of employment. Successful applicants will be required to sign a release for which authorizes the Department to obtain the applicant's permanent driving records.



SECTION V – Signatures

Signature indicates this statement is accurate and complete.

Employee:

Name: _____ Title: _____

Signature: _____ Date: _____

Immediate Supervisor:

Name: _____ Title: _____

Signature: _____ Date: _____

Bureau Chief:

Name: _____ Title: _____

Signature: _____ Date: _____

Division/District Administrator:

Name: _____ Title: _____

Signature: _____ Date: _____

Department Designee:

Keni Gross Administrator, Human Resources Division

Signature: _____ Date: _____